Test Readiness Review

FQT TRR
for EB 3
2/23/98

FQT TRR Agenda

- I. Purpose of the meeting
- II. CM Status
- III. TCS Software Requirements Status
- IV. Software Status
- V. FQT Status
- VI. Closing

FQT TRR Purpose

- State what software and document changes were approved for EB 3

- State what document changes were incorporated in the TCS SRS for EB 3

- State what software changes were implemented in EB 3

- State the readiness to start Formal Qualification Testing

TEST READINESS REVIEW
SOFTWARE FQT
23 FEBRUARY 1998

CM PRESENTATION

ENGINEERING BUILD 3

- PLANNED ENHANCEMENTS
- EB 3 CONFIGURATION
- LIST OF APPROVED CHANGES
- OPEN STRs

ENGINEERING BUILD 3

BUILD REVIEW RESULTS

PLANNED ENHANCEMENTS

- PAYLOAD CONTROL
- ANTENNA CONTROL
- CLOSED CAPTION VIDEO ENCODING

- MAINTENANCE CHANGES AS DESIGNATED
  BY THE ARB

BLOCK 0
ENGINEERING BUILD 3
CONFIGURATION

SOFTWARE VERSION: TCS 1.2

HARDWARE VERSIONS:
  FOR FQT:
  INTEGRATION SYSTEM (IS) 1 - NSWCDD
  FOR SI&T:
  IS 2 - SIL

  LANDBASED: TCS-LB/SUN 1.1
  SHIPBASED: TCS-SB/HP4 1.1

BLOCK 0
ENGINEERING BUILD 3
CONFIGURATION

DOCUMENTATION VERSIONS:

SYSTEM:

JROCM 001-97 TCS ORD, 3.0, 3 FEB 97, BL

TCS 100 TCS CONOPS, 1.0, 13 FEB 98, DRAFT

TCS 101 TCS TEMP, 2.0.1, 15 DEC 97, DRAFT

TCS 102 TCS SSS, 1.0, 30 JUN 97, BL

TCS 104 TCS SSDD, 1.0, 5 DEC 97, BL

TCS 119 TCS SYSTEM FQT TEST PLAN, 1.0, IN DEVELOPMENT

TCS 601 TCS VERSION DESCRIPTION DOCUMENT, 1.1, 13 FEB 98, DRAFT

SOFTWARE:

TCS 103 TCS SRS, 1.2, 24 DEC 97, BL

TCS 303 TCS ROUTE & PAYLOAD PLANNER SRS, 1.0, 2 SEP 97, BL

TCS 301 TCS SOFTWARE FQT TEST PLAN, 1.2, 12 FEB 98

TCS 302 TCS FORMAL TEST PROCEDURES 1.2, DATE TBD, IN DEVELOPMENT

BLOCK 0
ENGINEERING BUILD 3
CONFIGURATION

DOCUMENTATION VERSIONS:

C4I INTERFACES:

TCS 200 TCS TO AFATDS, 1.0, 12 JUN 97, DRAFT
TCS 201 TCS TO ASAS, 1.1, 5 DEC 97, BL
TCS 205 TCS TO CCTV, 1.1, 1 DEC 97, BL
TCS 209 TCS TO JSTARS AI CGS, 1.0, 8 DEC 97, DRAFT
TCS 210 TCS TO JSIPS-N, 1.0, 13 JAN 98, DRAFT
TCS 214 TCS TO JMCIS, 1.1, 1 DEC 97, BL
TCS 218 TCS TO ETRAC, 1.0, 5 FEB 98, BL
TCS 225 TCS TO TCIM, 1.0, 30 SEP 97, BL
TCS 233 C4I JII, 1.0, 5 MAY 97, BL

BLOCK 0
ENGINEERING BUILD 3
CONFIGURATION

OTHER INTERFACES:

TCS 228 TCS TO SBPCS, 2.0, 27 JUL 97

TCS 229 TCS TO AV STD INTERFACE, 1.1, 20 NOV 97, BL

TCS 237 TCS TO IDT, 1.0, 28 AUG 97, DRAFT

TCS 238 TCS TO DATA SERVER, 1.0, 12 APR 97, DRAFT

TCS 239 TCS TO DCM, 1.0, 20 JUN 97, DRAFT

TCS 240 TCS TO SAR IDD, 12 SEP 97, DRAFT

TCS 244 TCS TO FLIGHT ROUTE PLANNER, 1.0, 1 OCT 97, BL

PROGRAMMATIC:

TCS 700 TCS PM PLAN, 4.1, 6 AUG 97, BL

TCS 701 TCS CM PLAN, 1.0, 10 OCT 97, DRAFT

TCS 702 TCS JOINT INTEGRATED LOGISTICS
     SUPPORT PLAN, 1.0, 15 OCT 97, DRAFT

ENGINEERING BUILD 3

LIST OF APPROVED SW CHANGES

CI0025   ADD CAPABILITY TO CAPTURE UNCOMPRESSED
                   NITF IMAGES FOR C4I SYSTEMS
RD0020*   PAYLOAD CONTROL
RD0026*   CAPTURE TARGETING DATA FROM LIVE VIDEO
REQDEV0036* APL ANTENNA CONTROL
SW0006   UPGRADE AVSI APPLICATION FOR DYNAMIC
                   CONFIGURABILITY
SW0007   SEGMENTATION FAULT RECEIVED

* = SW AND DOCUMENTATION (SRS)

LIST OF APPROVED HW CHANGES

NO HARDWARE CHANGES FOR EB 3

ENGINEERING BUILD 3

APPROVED DOCUMENTATION CHANGES

TCS 103 TCS SRS 1.2 - 21 STRs incorporated
- EB 3 FUNCTIONALITY

TCS 209 - TCS TO JSTARS AI CGS IDD - 1 STR
INTERFACE CHANGES

ENGINEERING BUILD 3

LIST OF APPROVED DOC CHANGES

TCS 103 BLOCK 0 TCS SRS 1.2	TCS 209 TCS TO JSTARS AI CGS IDD, 8 DEC97
CM0001	CI0019
RD0006	
RD0025	
RD0027	
RD0028	
RD0029	
RD0030	
RD0031	
RD0034	
RD0058	
RD0060	
RD0061	
RD0062	
RD0063	
RD0064	
RD0065	
SW0005	
TD0001	
TD0002	
TD0003	
TD0008	

ENGINEERING BUILD 3

OPEN STRs AGAINST EB 3

PRI 1	1
PRI 2	0
PRI 3	0
PRI 4	10
PRI 5	12
TOTAL	23

• TD0002 - PRIORITY 1 - ATI;CDR LOCATION ERROR DEFAULT
  IS 80% LOWER THAN KNOWN PREDATOR ERROR.

ENGINEERING BUILD 3
SOFTWARE TCS 1.2
CSCI VERSIONS

AV COMMUNICATIONS SUBSYSTEM
      PDCM .3*
      ODCM .3 *
REAL TIME SUBSYSTEM
      DATA SERVER 1.2*
        HPUX 10.20
      RTP 1.2*
        HPRT 3.01
PAYLOAD SUBSYSTEM
      SAR 2.0
OPERATOR STATION SUBSYSTEM
      COMMON AV 1.2*
      ROUTE AND PAYLOAD PLANNER 1.0
      DII/COE 3.1

* = CHANGED FFROM EB 2 TO EB 3

TCS Software Requirements Status

FQT TRR

RAD IPT

Robin Makin

TCS SRS Status

- A draft TCS Block 0 SRS Ver 1.2 was distributed for IPT review on 12/5/97.

- The draft TCS Block 0 SRS Ver 1.2 resulting from the IPT review process was presented to CM on 12/24/97.

- Change pages for TCS Block 0 SRS Ver 1.2, update to Table C-1, distributed Mid January.

EB3 STRs Incorporated Into SRS

CM0001	SRS 1.1 DISCREPANCIES
RD0006	DISPLAY REMAINING FUEL
RD0020	PAYLOAD CONTROL
RD0025	REPLACE OVERLAY WITH ANNOTATION
RD0026	CAPTURE TARGETING DATA FROM LIVE VIDEO
RD0027	DATA GROUP CHANGES
RD0028	FURTHER DEFINE ROLE OF TARGET TRACK, TDBM, AND CMP
RD0029	DELETE TACCOM CONFIGURATION FILE REQUIREMENT
RD0030	ADD IMAGE ORIENTATION TO ANNOTATION OF LIVE VIDEO
RD0031	RECORD AVSI MESSAGES
RD0034	TCS OPERATOR LOGIN
RD0058	SET UP AND SAVE CONSOLE SETTINGS
RD0060	DISPLAY CURRENT TIME
RD0061	LOAD ADDITIONAL MAPPING DATA
RD0062	COORDINATE CONVERSION
RD0063	TRANSMIT MESSAGES TO DCM
RD0064	PRINTER INTERFACE
RD0065	BROWSE AND RETRIEVE STORED NITF MESSAGES
RECDEV0036	APL ANTENNA CONTROL
SW0005	ERROR IN FORMULA SRS 1.2, APPENDIX A.5
TD0001	STR REQDEV0021 NOT CORRECTED IN SRS VER 1.1
TD0002	ATI;CDR LOCATION ERROR DEFAULT IS 80% LOWER THAN KNOWN PREDATOR ERROR
TD0003	WHEN IS A MISSION PLAN FILE TRANSMITTED
TD0008	CORRECTION TO SRS APPENDIX A.4.1 ALGORITHM

TEST READINESS REVIEW
FQT
23 FEBRUARY 1998

SOFTWARE PRESENTATION

ENGINEERING BUILD 3
SOFTWARE TCS 1.2

- SOFTWARE CHANGES IMPLEMENTED
- VALID OPEN SOFTWARE CHANGE REQUESTS
- SOFTWARE DELIVERY SCHEDULE

ENGINEERING BUILD 3
SOFTWARE TCS 1.2

High Level Functionality

- Payload Control
    - Point Payload to a Position
- RTP
    - Antenna Control
        - Point and Command Antenna
        - Receive Status from the Antenna
        - Position the Antenna
- Receive mission data for and monitor up to 10 AVs
- Capture Compressed and Uncompressed NITF 2.0 Images

ENGINEERING BUILD 3
SOFTWARE TCS 1.2
Build Definition

CR #	PRI	TITLE
CI0025	3	Add Capability to Capture Uncompressed NITF Images for C4I Systems
RD0020	5	Payload Control
RD0026	5	Capture Targeting Data from Live Video
REDEV0036	5	APL Antenna Control
SW0006	4	Upgrade AVSI Application for Dynamic Configurability
SW0007	3	Segmentation Fault Received
SWA0006	2	Data Recording not Recording DCM Messages
SWA0012	2	Route Plans Cannot be Uploaded to the DCM
SWA0014	4	Abnormal Shutdown Requires Manually Processes
SWA0016	3	Upload Mission Twice Causes TCS Crash
SWA0028	4	North Pointing Arrow in Output1 off by 180 Degrees
SWA0031	2	Displayed Image Angle Did not Match Expected Values
SWA0033	4	Video Telemetry Data not Removable per SRS0066
TDA0002	5	TCS Position Window Does not Close Upon Program Exit
SWA0035	4	Range Value Correction for AVSI 1.1 Messages
SWA0036	2	Tactical Message, TDBM not in Build

ENGINEERING BUILD 3 SOFTWARE TCS 1.2
Build Definition

CR #	PRI	TITLE
SWA0037	2	APL Antenna Does not Work
SWA0038	5	NITF File Content Incorrect
SWA0043	2	Payload Control Function is not Working
TD0034	3	Only One NITF File can be Stored for Outrider

ENGINEERING BUILD 3
SOFTWARE TCS 1.2

OPEN VALID SOFTWARE STRs

PRI 1 -   1

PRI 2 -   0

PRI 3 -   0

PRI 4 - 10

PRI 5 - 12

TD0002
(ATI;CDR LOCATION ERROR DEFAULT IS 80% LOWER THAN KNOWN PREDATOR ERROR)

- **Problem:** The ATI;CDR location error default is 20m and the Predator error is 100m. This could potentially present a safety problem.

- **Recommendation**: Default the ATI;CDR messages coordinate error value numerical field to its maximum value.

- **Impact to EB3/1.2**: None

- **Implement**: EB4/1.3

OPEN VALID SOFTWARE STRS

STR #	PRI	TITLE
TD0002	1	ATI;CDR Location Error Default is 80% Lower Than Known Predator Error
RD0053 (RPP)	4	GDT Terrain Masks are not Always Displayed
RD0055 (RPP)	4	All Mask Altitudes Must be Set in "Threats"
RD0066 (RPP)	4	AV Perfairspeed was Not Immediately Applied
RD0067 (RPP)	4	AV Perf Weight Was Not Immediately Applied
RD0068 (RPP)	4	AV Perf Fuel Usage Was Not Immediately Applied
RD0074	4	Payload Actions Applied To WPS Added by Router
REQDEV0002	4	SAR Requirements
SYSINT0016	4	No TACOM Message Log
SYSINT0017	4	FOV& TACOM Coordinate System Should be the Same
RD0006	5	Display Remaining Fuel
RD0028	5	Further Define Role of Target Tracks, TBDM, and CMP
RD0031	5	Record AVSI Messages
RD0049 (RPP)	5	Flight Profile Zoom Arrows Not Intuitive
RD0050 (RPP)	5	Flight Profile Needs Legend
RD0051 (RPP)	5	Flight Profile Needs Waypoint Display

OPEN VALID SOFTWARE cont

STR #	PRI	TITLE
RD0052 (RPP)	5	Flight Profile Should Auto Scale
RD0059	4	Definitions for Skyball EO Sub-Modes in AVSI
REQDEV0007	5	Define Secondary Source Receipt Requirements Clearly
REQDEV0023	5	Add Close Caption to Exported Analog Video
SYSINT0018	5	Location Rounding
SWINT0007	5	RECCEXREP Remarks Field Only 34 Characters
SWINT0039	5	Salute Message Does Not Initial the Time Field

EB 3/1.2 SOFTWARE SCHEDULE

- Software Integration Testing   Feb 6-23
- Delivery to CM   Feb 24
- Formal Qualification Testing   Feb 25

FQT Status

FQT TRR for EB 3

T&D IPT

Jeff Kepcke

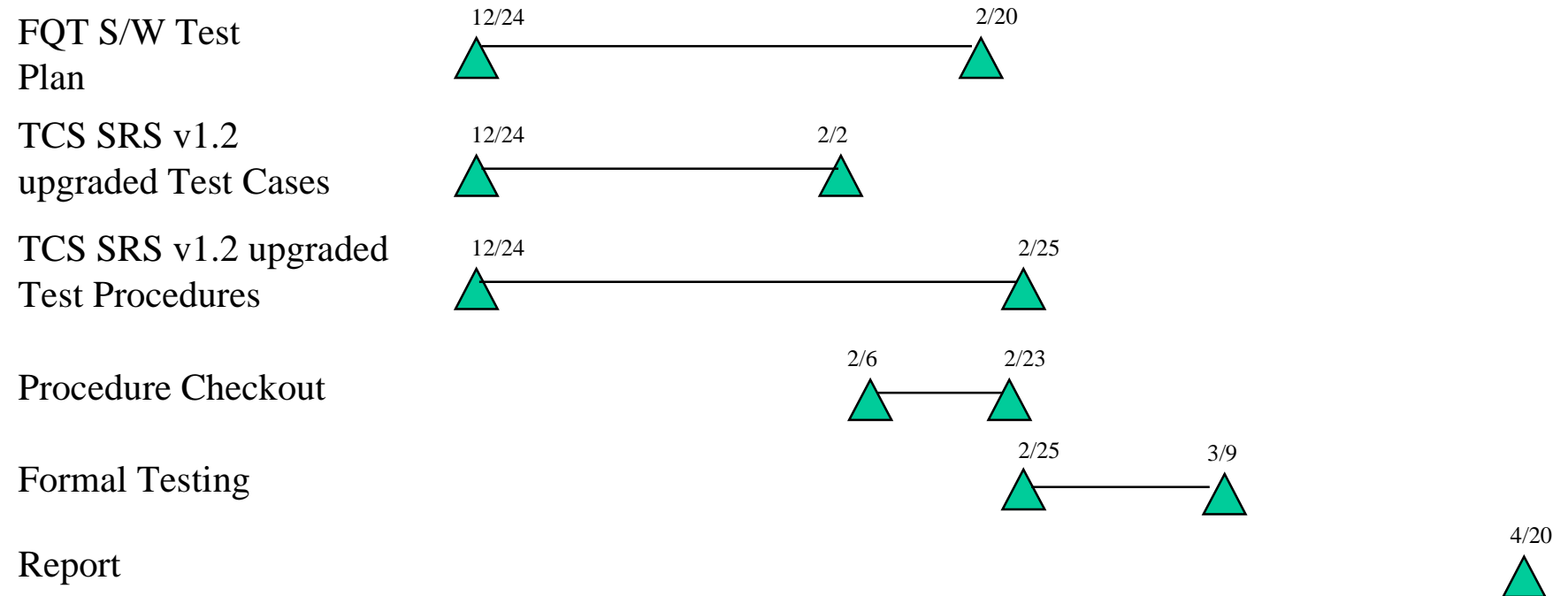2/23/98

FQT Documentation Status

- FQT Software Test Plan (STP)
  - The STP was distributed for IPT review on 2/12/98
  - The final STP was given to CM on 2/20/98
- FQT Test Case Design
  - Test Case were completed on 2/2/98 based on the TCS SRS dated 12/25/97
- FQT Test Procedures
  - The Test Procedures will be basedlined on 2/25/98
  - Redlines will be incorporated in the As-Run procedures

FQT Process Schedule

FQT S/W Test Plan	12/24 ▲————————————▲ 2/20	
TCS SRS v1.2 upgraded Test Cases	12/24 ▲————————▲ 2/2	
TCS SRS v1.2 upgraded Test Procedures	12/24 ▲————————————▲ 2/25	
Procedure Checkout	2/6 ▲————▲ 2/23	
Formal Testing	2/25 ▲————▲ 3/9	
Report		4/20 ▲

FQT New Test Procedures

- Functionality upgrades
  - Payload Control
  - Payload Status
- Additional Documentation
  - PDCM Integration
  - ODCM Integration

Test Execution Plan

Procedure Name	Pri	Execute Time (hrs)
System Setup *	N/A	N/A
Initialization *	1	1
Telemetry *	2	5
Payload Control	3	2
Payload Status	3	2
APL Antenna Control *	3	2
Video Processing *	3	2
C4I Tactical Messages *	4	2
NITF Messages *	4	2
ODCM Integration	5	2
PDCM Integration	5	2
RPP Integration *	6	1
SAR Processing *	7	1
Default State Data *	8	1
Shutdown Processing *	9	1
Endurance *	10	24+
Total	16	50+

* updated from EB 2

FQT Testing per Configuration

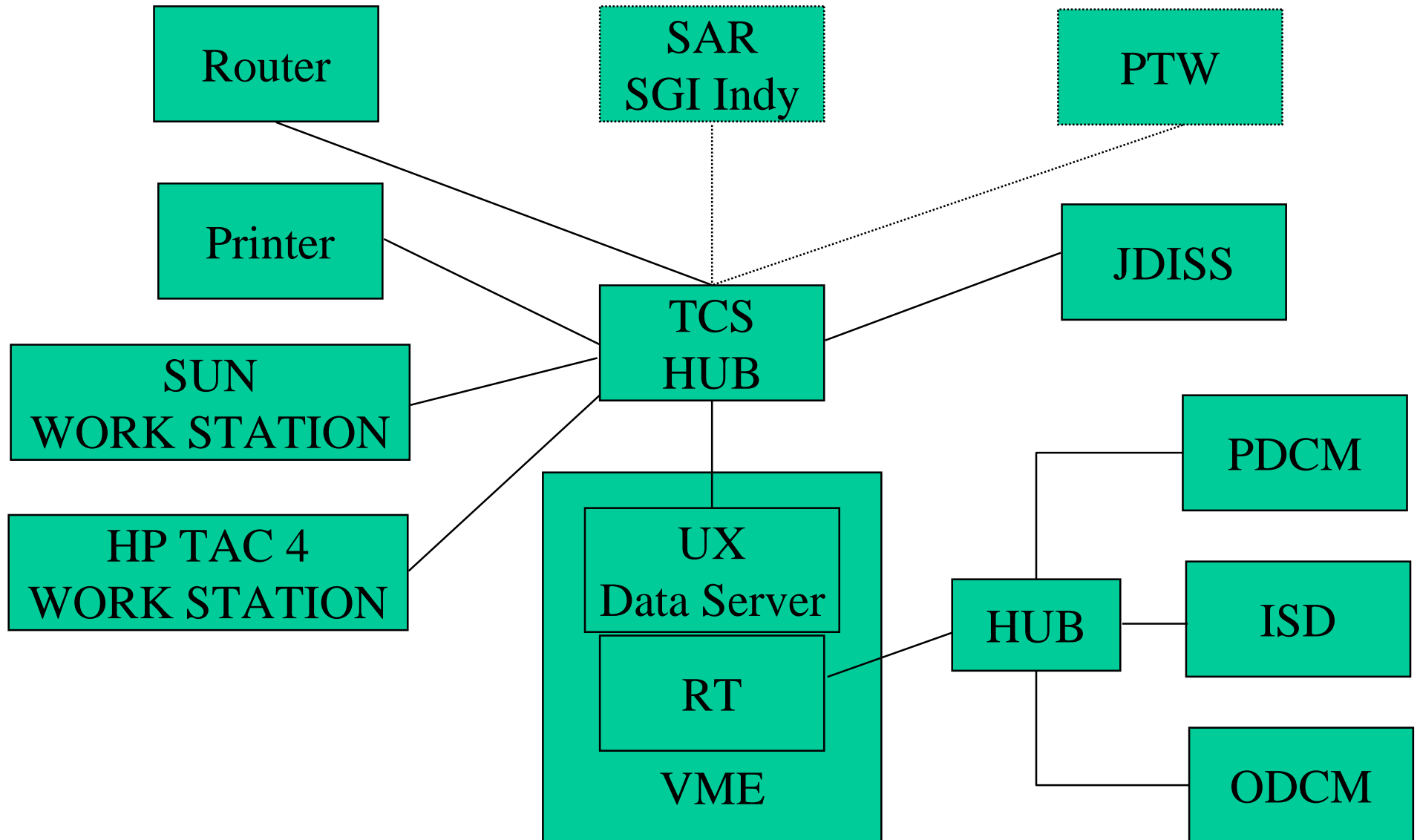|	Predator	Outrider	Total
HP	26 24 Endurance	11	61
SUN	11	26 24 Endurance	61
Total	61	61	122

FQT Planned Testing Schedule

Testing Schedule						
			2/25	2/26	2/27	Total
Shift 1 0700-1330						
Shift 2 1330-2000						
Execution Time			13	13	13	39
	3/2	3/3	3/4	3/5	3/6	
Shift 1 0700-1330		Endurance	Endurance	Endurance		
Shift 2 1330-2000		Endurance	Endurance	Endurance		
Execution Time	13	17	24	20	13	87
Shift 1 0700-1330	3/9					
Shift 2 1330-2000						
Execution Time	13					13
Total time schedule 139 hours						

FQT Lab HW Test Config

Router

SAR
SGI Indy

PTW

Printer

JDISS

SUN
WORK STATION

TCS
HUB

PDCM

HP TAC 4
WORK STATION

UX
Data Server

RT

VME

HUB

ISD

ODCM

FQT TRR for EB 3

- CLOSING

FQT TRR Closing

- Action Items
- Questions
- Comments

FQT TRR Recommendation

- TCS requirement are defined
- TCS software is ready to proceed to the FQT phase
- The Software Test Team is ready to start the FQT phase